HIGH ORDER FINITE-VOLUME WENO SCHEMES FOR NON-LOCAL TRAFFIC FLOW MODELS

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ABSTRACT. This talk focuses on the numerical approximation of the solutions of non-local systems of conservation laws in one space dimension, arising in traffic modeling, in which the mean velocity is assumed to be a nonincreasing function of the downstream traffic density. We propose to use Finite Volume WENO (FV-WENO) schemes to obtain high-order approximations, with quadratic polynomials reconstructions in each cell to evaluate the non-local terms. Simulations usingFV-WENO schemes are presented for both, scalar and multi-class traffic flow models.

Keywords: system of conservation laws, nonlocal flux, traffic flow model, finite volume schemes, weighted essentially non-oscillatory scheme.

Mathematics Subject Classifications (2010): 65M08, 35L65, 90B20

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